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ORIGINAL ARTICLES.

AN EPISCLERAL OSTEOMA.

BY FRANK VINSONHALER, M. D.,

LITTLE ROCK, ARK.

J. K., age 50, white, Irish descent, presented himself with the statement that there was something in his right eye. He further stated that for two days there had been a burning, itching sensation and some photophobia. Examination revealed what appeared to be a foreign body about two-thirds the size of a pea and apparently imbedded in the tissue of the sclera. There was moderate injection around this point for a distance of five or six millimeters. In all other respects the eye was normal.

The first impression was that this was a small pebble used in removing foreign bodies from the conjunctival sac, the use of which is common in certain places on the continent. He, however denied having ever resorted to such an expedient. He could not recall having received an injury or a wound from a foreign body at any time, and he had never been troubled at any time with this eye.

Under cocaine the tumor was removed and proved to be a bony growth, irregularly oval, and faceted at the point of contact with the sclera; it was five millimeters long, four millimeters wide and two millimeters in thickness. It was surrounded by a

fibrous capsule and firmly adherent to the sclera at a point midway between the external and superior rectus muscles and approximately five millimeters posterior to their insertion into the sclerotic.

The recovery was uneventful and the eye became perfectly normal.

Saemisch has collected the records of twenty such cases and they appear in his article upon osteoma in the Graefe Saemisch Encyclopædia. Only one of these twenty cases is accredited to America, that reported by Loring twenty years ago. The condition, therefore, must be regarded as extremely rare. The explanation given by Saemisch for the occurrence of these bony growths upon scleral tissue is that they are purely an embryological fault. Proof of this is present in the evidence that in nineteen cases the osteoma occurred at the same point between the superior and external rectus and back of their insertion. The case in which the growth occurred between the superior and internal rectus was reported by Spencer Watson in the British Medical Journal. Saemisch believes this to have been a particle of cartilage which later became ossified. The age limit at which the growth was discovered and removed is given as thirty-six, the youngest as three months. The above reported case, therefore, is the most exceptional in regard to the age limit, the patient being fifty years old. In all of these cases, so far as I have been able to ascertain, the patient did not suffer from the presence of this bony growth or experience any discomfort or impairment of vision until they were discovered accidentally, or as in the above case attention would be called to it by a few days of irritation or discomfort.

The finer histological findings are given in a case reported by Vignes in the reports of the Ophthalmological Society of France. It would seem from this that the structural arrangement of the osteoma is identical with that of the frontal bone.

MICROSCOPICAL EXAMINATION OF DR. VINSON-HALER'S SPECIMEN OF EPISCLERAL OSTEOMA.

BY ADOLF ALT, M. D.

(Illustrated.)

When Dr. Vinsonhaler's specimen of episcleral osteoma reached me, it was perfectly dry and appeared as hard as ivory, except for some shreds of tissue adhering to it.

In order to be able to cut it into sections, I decalcified it in a weak nitric acid solution (10 per cent.) for 24 hours, following



FIG. 1.

this up by immersion for another 24 hours in a 5 per cent. alum solution. The sections after having gone through the different fluids and staining processes were probably somewhat swollen. Those through the center of the little tumor measured on the glass slide 7 millimeters in length and, at the thickest part, 4 millimeters in height.

The bulk of the tumor is true bone tissue. There is nowhere any cartilage. The bone tissue is surrounded by a connective tissue capsule which corresponds to the periosteum of normal bone. There is some loose connective tissue attached to the concave scleral side of the tumor which contains an abnormal num-

ber of cellular elements, and a number of blood vessels surrounded by leucocytes and lymphocytes.

The bone itself contains a very large number of blood vessels, which coming from the concave episcleral surface, rise towards the convex side and give off numerous branches. The blood-vessel walls are those of capillaries. The concentric arrangement of the bone cells around these vessels is not as marked as it is usually depicted. Yet, in some sections it can in places be well distinguished. There seems, however, to be a much larger number of bone-cells than we usually find, and especially than

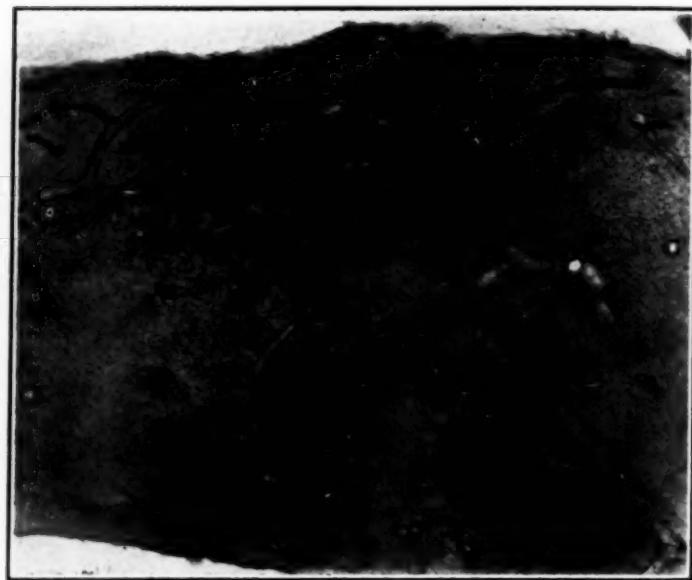


FIG. 2.

we find in the newly formed bone within the eye. The different chemicals have very materially altered the shape and characteristics of the bone cells; they appear simply as little stained dots in the lacunae.

It seems that this osteoma in some points differs from those described by former authors, which is probably due to the advanced age of the patient. In Vigne's case there were only some trabeculae of bone contained in connective tissue, and the arrangement reminded him of the flat bones of the skull. Cirincione's description agrees very much better with what I have

found. He also found a layer of osteoblasts in the periphery of the bone plate, which were seen to be transformed into bone. In my specimens it is impossible to make out any osteoblasts, probably because the specimen was perfectly dry. His description of the bone itself differs from mine, by the further fact that he found here and there cartilage tissue in the bone.

Other cases, like Friedland's, show enough of other tissue types that the bone formation appears of secondary importance. Such cases have been described as lipodermoid of the conjunc-



FIG. 3.

tiva with bone formation; others as osteofibroma, or osteo-fibrolipoma of the conjunctiva.

It seems to be certain that in these episcleral bone formations we have to deal with congenital formations, that is, with the deposition on this place of cells which are about to form bone and which do not belong in this region. Certainly, the so-called osteoma has not been found to be the result of an inflammatory process after birth, nor does it seem to attain a large size, even when allowed to remain in place as long as it did in Dr. Vinson-haler's case.

A CASE OF TRANSITORY LENTICULAR OPACITY IN BOTH EYES IN A DIABETIC PATIENT.

BY ADOLF ALT, M. D.

Among the affections of the eye due to diabetes, the formation of cataract seems to be the most frequent one, although the opinions of the observers as to the percentage of its occurrence run widely apart, from 0.6 per cent. (Fauconneau-Dufresne), to about 45 per cent. (Schmidt-Rimpler).

Why diabetes causes an opacity of the lens, is still not fully understood. The opinion of Heubel that the sugar contained in the vitreous body and aqueous humor by withdrawing water from the lens would lead to the opacity of the lens, is not universally shared. At least, Hess in Graefe-Saemisch, Vol. VI., p. 94 and ss., gives a resumé of reasons for abandoning it. He ends the discussion of this point by accepting Deutschmann's view, according to which "the localized death of the lens epithelia and fibres, is the primary affection, just as, for instance, the localized death of the epithelia of the kidneys. This primary localized death of epithelial cells secondarily leads to an abnormal process of diffusion." The conditions, therefore, would be similar to the production of cataract by naphthaline.

Against the opinion of Huppert, that the diabetic marasmus should be looked upon as the cause of the cataract, Hess urges correctly, that diabetic cataract not at all rarely occurs in individuals who show no signs of such a marasmus, but on the contrary appear healthy and well nourished.

As to the possibility of the disappearance of a diabetic lenticular opacity and a *restitutio ad integrum*, Hess says the following: "The statements reporting a clearing up of diabetic lenticular opacities have been doubted. In many cases it must, indeed, be very difficult to make certain that the improvement in vision is in reality due to the clearing up of the lens, and not, perhaps, to the improvement of a concurrent affection of the retina. It is undoubtedly true that, in spite of the total disappearance of sugar from the urine, the lenticular opacity may proceed further. On the other hand a number of cases have been reported in which a lenticular opacity was said to have more or less perfectly cleared up." He then discusses such cases as reported by Nettleship, Gayet, Koenig and others, and adds:

"If these were really cataracts due to diabetes, the conditions would appear to be analogous to those in cataracts, which are

experimentally produced by naphthaline. In such cases, I too, have seen the lenticular opacity clear up, in spite of the continued feeding of naphthaline, while in other cases the opacity proceeded to a total cataract, although the naphthaline was withdrawn."

In the chapter on the connection between systemic diseases and affections of the eye, Graefe-Saemisch, 2d Edition, Vol. XI., p. 342 & ss., Groenouw, also discusses diabetic cataract. He states that in many cases a diabetic cataract shows no special typical signs, but develops very much like a senile cataract.

"Yet, there are certain cases in which the development of the cataract takes place in a manner which differs very much from the usual one. This form of diabetic cataract may be recognized as such and has its peculiar characteristics. In such cases the cortical layer directly beneath the capsular epithelium is the first to get dim. A thin bluish haze extends over the whole of the anterior lens surface, and since it lies directly behind the pupillary edge of the iris, it is certain that it is situated in the most superficial layers of the cortex. Aside from the sector-like arrangement which always accompanies the opacities of this superficial layer, its color is throughout a homogeneous one. While, however, this sector-like arrangement at the lens surface in other cases denotes one of the last acts of the formation of a cataract, it is in these cases found right from the beginning. The nucleus and the deeper layers are still quite clear, as can easily be seen by focal illumination. In a few weeks the opacity spreads into the deeper layers and finally there results a bluish, soft cataract without any nucleus, which can no longer be differentiated from the cataracts of juvenile individuals. Foerster, who described this form of diabetic cataract in the manner just related, saw it always develop in a nearly similar way in both eyes and only in juvenile individuals, to about the twentieth year. The appearance of the lens at the beginning of the process is so characteristic, that from it sugar in the urine may be diagnosed. *In these cases we probably have to recognize an opacifying influence exerted upon the lens by the sugar contained in the aqueous humor.*"

In discussing the reports concerning the disappearance of diabetic lenticular opacities, Groenouw comes to the conclusion that, "since it would appear evident that such an extraordinary occurrence as the clearing up of a lenticular opacity would not have escaped the attention of oculists, we must at present deny this possibility as much for diabetic cataracts as for others." Yet,

just before making this statement he has referred to the reports on just such occurrences made by a number of well known oculists from their own observations.

A diabetic cataract matures very rapidly and generally in a few months. In some cases it ripens much quicker. But Litten relates a case in which a cataract matured in eleven days and he states that in some cases he saw the ripening of a diabetic cataract occur within a few hours. Scheffels saw it happen in twenty-four hours.

In a paper published in this journal some years ago, I related a case in which I had seen a lenticular opacity disappear. That this was really so, I know. The patient, an elderly lady, belonged to my own household, and I had ample opportunity to observe the case again and again. This, however, was not in a diabetic subject, although there was some renal disturbance with oedema of the lower limbs, all of which disappeared together with the lenticular opacity. The lady lived twenty years longer and nothing of a similar nature reappeared, neither was the clearing up only apparent, and due to the liquefaction of the lens substance. It is, however, the only case of beginning senile cataract in which I have made such an observation. In partial traumatic cataracts, like others, I have seen the disappearance of most of the opacity a number of times.

The following case of a traumatic lenticular opacity in a diabetic patient which I had occasion to observe is certainly worth putting on record, especially in view of the references from literature which I have considered above.

Mrs. J. L. W., with a myopia of 2 D, the wife of my friend and neighbor, and whose father had died of diabetes, was a perfect picture of health and was apparently perfectly well until her third pregnancy. Since she was very apprehensive of having inherited diabetes, her urine had previously been examined quite often, but no sugar had been found. During her third pregnancy, however, a small quantity of sugar made its appearance. She was now about twenty-eight years of age. The sugar is said to have disappeared under treatment in the East where the family had gone for the summer. Yet, she was ailing continually and the death of the foetus prematurely ended this pregnancy. After her recovery from the immediate effects of this fatality, she did not seem to be able to regain strength and lost flesh continually. Sugar was now found in her urine in varying quantities at every examination. The physician who had charge of her case, when

here, prescribed an appropriate diet. I know that being very self-indulgent she did by no means follow his advice strictly. She and her husband rather pinned their faith to a patent medicine, "which had cured the worst cases of diabetes," and the wonderful properties of which were vouched for by physicians and ministers. All my friendly talk could not alter this, and the quantity of sugar in the urine grew continually.

Suddenly one day while reading she noticed a clouding appear first over the right and then also over the left eye which made it impossible for her to read the even comparatively large print of the book she was interested in. This happened about eleven o'clock in the morning. At five o'clock in the evening of the same day, I had an opportunity to examine her eyes ophthalmoscopically. I expected to find a diabetic retinitis, but, to my astonishment, I found in the whole pupillary area of the right eye a dimness which was so dense that no very clear picture of the fundus could be obtained. Oblique illumination confirmed the fact that the most superficial layers of the cortex of this lens were opaque. The opacity lay directly under the capsule, showed some radii and had a bluish appearance. In the left eye both the ophthalmoscope and oblique illumination showed plainly six opaque radii in the anterior cortical substance and barely a haze between them. The ophthalmoscopic picture of the left fundus was that of an absolutely normal eye and I was satisfied that no gross lesion was present in the fundus of the right eye.

At this period of her history the specific gravity of her urine was 1056 and the urine contained a very large quantity of sugar.

As she was terribly frightened at the impending blindness, the lax treatment which had obtained before, suddenly gave way to a strict observance of all dietary regulations and the patient was placed under the care of another physician, who was allowed to take full charge of the case and did so. Under this new management the quantity of sugar diminished rapidly and, within a week, the radial opacities in the left lens were just barely recognizable and the more pronounced dimness of the right lens was very much reduced. In about two weeks the ophthalmoscope revealed only a haze in the right cortex and nothing in the left lens. Both fundi were normal. The patient could read and sew again without apparent discomfort. I was in a position to examine the patient frequently and I know that the lenticular opacities disappeared altogether. Neither did they recur, nor did any other eye affection make its appearance during the four-

teen months which she lived after this transitory lenticular opacity had made its appearance. She died in diabetic coma in spite of all that was done.

It seems to me that such an observation would rather prove the correctness of Heubel's opinion, which assumes a direct deleterious influence upon the lens by the sugar contained in the fluids of the eye itself, especially since in my case the lenticular opacities disappeared with the rapid elimination of the sugar under appropriate treatment. Diabetes not being such a very frequent disease, it does probably not happen in many cases that an oculist has as good an opportunity to see and examine a case, as was mine in this one. That alone may explain the fact that such observations have not been reported more numerously. Neither do I see any valid reason why the reports of such cases made by men of repute should be looked upon with a doubting eye.

RELATIONS OF THE SUPERIOR AND INFERIOR RECTI MUSCLES TO CONVERGENT SQUINT.

Edward Jackson (Jr. A. M. A., July 14, 1906) believes that the superior and inferior recti muscles play an important role in convergent squint. He shows that while the rectus interimus, as the primary adductor, exerts its pull most effectively in the primary position of the eye and grows progressively less effective as the eye converges, the superior and inferior recti, as secondary adductors, on the contrary, have little or no power as adductors in the primary position, but become more and more effective as the eye turns inward. He believes that the most serious alteration of structure in convergent squint is the contraction of the nasal margins of the superior and inferior recti muscles and that the best and most rational operative procedure in treating these cases is to divide the nasal half of these muscles, with the internus, in higher degrees of squint. In the lower degrees the internus should be left alone or simply stretched.

He summarizes his article thus:

"The primary adductor and abductor, the internus and externus tend to equilibrium with the eye directed forward. The secondary adductors (the superior and inferior recti) and the secondary abductors (the oblique) tend to turn the eye even more strongly in or out. A rational operation to correct excessive convergence must tend to lessen the relative influence of the secondary adductors."

MEDICAL SOCIETIES.

SEVENTY-FOURTH MEETING OF THE BRITISH MEDICAL ASSOCIATION.

HELD AT TORONTO, CAN., AUGUST 21ST TO 25TH, 1906.

SECTION OF OPHTHALMOLOGY.

Thursday, August 23rd, 1906.

There was a capital attendance at the third day, and a very interesting morning's work was accomplished in a crowded room. The weather continued very hot, but this in no way seemed to interfere with the general interest in the proceedings. The greater part of the morning was occupied by a discussion upon lacrimal stricture and its treatment. It was introduced by Dr. Osborne (Hamilton), who was followed by Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore). Dr. Osborne very graphically discussed the various forms of treatment in vogue and dwelt upon the merits of the operation of extirpation of the lacrimal sac. Dr. Risley was anxious that the merits of the old conservative treatment of lacrimal stricture should not be forgotten, and impressed the importance of recognizing anatomical anomalies as a causative factor of the disease. Dr. Theobald was as convinced as ever of the merits of his treatment of stricture by dilatation with large probes, and gave his hearers a thorough insight into his methods. As regards extirpation of the sac, he had personally not given that method of treatment a trial. Several speakers joined in the subsequent discussion. The general impression received was that most of the speakers looked upon extirpation of the sac as a sort of *dernier ressort*, to be recommended only when experience or trial had shown the impossibility of cure by more conservative means. One was rather struck by the very general lack of enthusiasm with regard to the operation of extirpation, and the little that was said of many points of interest with regard to it, especially as regards the technique and the after-condition of the patient as regards complete relief or otherwise from epiphora. The remainder of the

morning was occupied by three papers. The first was read by Dr. Eugene Smith upon extraction of the anterior capsule of the lens. He strongly recommended this method of dealing with the capsule in cataract extraction, and showed a special pair of forceps that he had designed for the purpose. He found that after several hundred extractions of cataract in which the anterior capsule was treated in this way, a subsequent discussion was only necessary in about 3 per cent. of cases. The second paper was read by Mr. Ernest Maddox (Bournemouth), who introduced a very handy little pocket receptacle for ophthalmic knives, which may be seen at Messrs. Weiss of Oxford street. The third paper was one by Dr. Lucien Howe (Buffalo) on secondary insertion of the recti muscles.

Friday, August 24th.

A welcome change from the extreme heat of the three preceding days did not produce a corresponding increase in the attendance; but this being the last day of sectional meetings, and three good days' work having already been very closely attended, probably accounted for a rather smaller, though a still goodly attendance. Dr. Duane (New York) read a paper upon tenotomy of the inferior oblique muscle, with a consideration of the different conditions that may call for the operation. The paper was exceedingly carefully worked up, but its detail is too abstruse to give a satisfactory abstract of the contents, and readers of the JOURNAL must look out for a full report of it elsewhere. Suffice to say that, whilst the operation certainly relieved the diplopia in the cases cited, it did not appear to have abolished it in any case. It makes very little practical difference to a patient if the double images are 2 feet away or 6 inches. Indeed the latter condition is rather worse in its confusing effect than the former, and we were struck by the thought that probably Dr. Duane's patients would have received more practical benefit by shutting off one eye in cases irremediable by other methods than by his operation. Dr. Sterling Ryerson (Toronto) read a paper on the surgical treatment of trachoma. He considered expression and grattage the two best methods of treatment, and pointed out the importance of steady perseverance with local applications after operative measures had been undertaken. It was only in certain cases that operation was called for, and in the papillary variety of the disease he looked upon Darier's treatment as very

satisfactory. Dr. Dunbar Roy narrated a case of orbital phlegmon simulating a malignant growth commencing in the ethmoidal cells. He dwelt on the important correlation between diseases of the accessory nasal sinuses and symptoms of orbital and ocular disturbance, and urged the necessity of ophthalmologists being in full touch with all the methods of nasal sinus treatment. Dr. H. V. Würdemann exhibited a very neat and handy little "transiluminator," which presented very definite advantages over other similar instruments already introduced. The morning's discussion was upon visual tests in public services. Dr. Williams (Boston) introduced that part of the discussion which appertained to the railroad and marine services, whilst Mr. Arnold Lawson opened the portion dealing with military service. Dr. Williams, in a very careful and exhaustive paper, dealt with the American regulations and methods of testing the men of the railroad service. Mr. Arnold Lawson first discussed the needs of an army with regard to eyesight, as gathered from an exhaustive inquiry into the regulations for eyesight laid down by the various countries of Europe. He then went on to the practical application of these needs as carried out in the English regulations, and suggested certain alterations. Dr. Jackson (Denver) pointed out that there was a certain pale green band in the spectrum, which served as a test of red-green blindness, and if a shade corresponding to this band was used in testing for color-blindness, evasion was almost impossible. It was very necessary, therefore, to include this shade as a primary test. Mr. Freeland Fergus, speaking of eyesight tests for navigation, said that in his opinion it was essential for a man who had the duties of a pilot to perform to have a good light-difference sense. Without that it would be quite impossible for him to pick up the land on a dark night. An interesting general discussion followed, in which many members participated, and the session of the Ophthalmological section of the British Medical Association's meeting for 1906 was finally closed by the passing of a cordial vote of thanks to Mr. Marcus Gunn, the President of the Section.—*Brit. Med. Journal.*

EXTRACTS FROM THE REPORT OF THE THIRTY-THIRD MEETING OF THE GERMAN OPHTHALMOLOGICAL SOCIETY.

HEIDELBERG, AUGUST 6TH TO 8TH, 1906.

Translated by Adolf Alt, M.D.

BY DR. E. LEVI, in the *Klinische Monatsblaetter*.

Nagel (Berlin). A contribution to the knowledge of the vision of deuteranopes.

Nagel makes a communication concerning the vision of some deuteranopes (especially green-blind ones), while contemporaneously larger parts of the retina are irritated. He found that individuals whose purely central vision is of a typically deutanopic type, when a larger retinal field is used in the act of seeing, can recognize certain colors which makes it probable that their perception is trichromatic. It is not yet clear, whether they possess a normal or an abnormal color system. Under a visual angle of at least 10 degrees, red is well differentiated from other colors; green is much less certain, but it results in a red after-image. As with abnormal trichromatics the minimal time for differentiating colors is considerably increased.

Fuchs (Vienna). The aetiology of cataract.

In a previous paper I have shown that in cases of heterochromy deposits on the posterior surface of the cornea and cataract may be observed in the lighter colored, usually blue, eye. Such individuals have generally black hair. The same conditions which in such cases act detrimentally in one eye, may act in both. These are the people with black hair and blue eyes, who later in life show deposits on the posterior surface of the cornea and cataract. He has observed two groups of these cases. One in younger persons, thirty to fifty years old, who had a bluish-white cataract, either monolaterally or bilaterally, with a soft and dim nucleus, as seen on operation. In such cases the deposits were present. The second group comprised old people with ordinary cataract with a hard, sclerosed nucleus. He supposes that these were cases of purely senile cataract. The examination of the excised pieces of iris showed in the pathological cases a moderate infiltration in the anterior layers in the pupillary margin. There were usually mastcells. The co-existence of black hair and blue eyes in most cases results from the mixture of a light and dark race. In such cases the eyes probably are healthy. In cases in which diseases as the ones here described

take place, we must assume that the light color of the iris is due to a pathological condition which prevents the formation of pigment. I concluded, therefore, that certain individuals with black hair and blue iris are prone to suffer from a chronic cyclitis with deposits on the back of the cornea and cataract.

Roemer (Wuerzburg). *Studies concerning the exchange of fluids in the lens and the action of poisons.*

Stock (Freiburg). *A peculiar form of amaurotic family idiocy.*

The author has seen three children of one family which became idiotic and blind in the sixth year of life. They differed, therefore, from the Tay-Sachs type in which blindness comes on at the latest in the second year, and paralyses precede the idiocy. Stock's cases had no paralyses and blindness was complete only in the seventh year.

The brain showed a normal system of fibres, the ganglion cells were internally diseased. In the retina the rods and cones were absolutely wanting. The ganglion cells were mostly preserved, but diseased internally. The nerve fibre layer and optic nerve were normal. Secondarily, in two of the cases some pigment had grown into the retina and caused a picture similar to pigmentary retinitis; the fundus of the third one was clinically normal. Since the choroid, especially the choriocapillaris, was perfectly normal, a primary affection of the rods and cones is evident. Whether this is due to toxines or to a congenital weakness cannot be stated.

Hertel (Jena). *Experimental studies concerning the contraction of the pupil on light stimulus.*

The author reports on a series of experiments in which he succeeded to produce a contraction of the pupil, even after the oculo-pupillary reflex tracts had been abolished.

After severing the optic nerve, neither rabbits nor cats showed a contraction of the pupil on admission of gas - or day-light, even after they had long been kept in the dark. Yet, under the electric arc light the pupils contracted slowly, but surely. In man, also, with total amaurosis from an affection of the optic nerve due to a fracture of the base of the skull, such a contraction could be produced by the arc light, but not by gas - or day-light. Even in enucleated frog's eyes and fish eyes this symptom could be observed. This was found to be due to the difference in stimulating influence of the different parts of the spectrum. Rays from the short wave ultraviolet part of the spectrum showed the

strongest influence, both in warm and cold-blooded animals. Long wave rays acted better on the pigmented sphincter of cold-blooded animals. He considers the contraction of the pupil to be due to the direct influence of certain light rays on the sphincter muscle.

Krueckmann (Leipzig). *On degeneration of the retina, especially that form which is caused by arteriosclerosis.*

All forms of degeneration of the retina, seen histologically, may be the result of arteriosclerosis. Degeneration of the retina manifests itself in the ophthalmoscopic picture almost never in the nervous, but always in the glia elements. It consists of white glittering spots, pigment spots and a glia covering of the peripheral bloodvessels. The white spots consist of fat granule cells, which are glia cells. They absorb nerve elements, especially varicose nerve fibres which undergo a fatty degeneration. They, furthermore, absorb retinal haemorrhages and homogeneous masses of albumine. That these cells are glia cells can be seen ophthalmoscopically when the cells of the anterior glia ring get fatty. The affections of the retina seen in chronic renal diseases, diabetes, retinitis circinata, and others are due to arteriosclerosis. Senile arteriosclerosis is very frequent, but comparatively benign; but senile macular affections are primarily due to arteriosclerosis.

E. von Hippel (Heidelberg). *Trauma as aetiological factor in the production of parenchymatous keratitis.*

An aetiological connection between trauma and typical keratitis parenchymatosa has not yet been proven.

Pfalz (Duesseldorf). *On bilateral parenchymatous keratitis (sympathetic?) after a superficial injury to one eye.*

The author tries to prove that a case observed by him four days after a superficial injury by a foreign body to the right cornea, was a typical parenchymatous keratitis. Four weeks later the left cornea was attacked by the same disease. In his case, lues and tuberculosis do not seem to have been present. The affection of the second eye, he is inclined to call a sympathetic one.

Erdmann (Rostok). *On experimental glaucoma.*

The introduction of an electrolysis needle (positive pole) into the anterior chamber of a rabbit, while the negative plate was attached to the animal's back, produced glaucoma which was found to be due to particles of iron being deposited in Fontana's spaces. As this method of applying the electrolytic current within the anterior chamber frequently lead to phthisis bulbi, the

aqueous humor was withdrawn into a small vessel, and the electrolytic current applied to this fluid outside of the eye for from to four minutes. The resulting flocculent, olive-green, fluid was then injected into the anterior chamber of rabbits, and in 75 per cent. of the cases the tension became increased in from two to five days, and this led to a general distension of the eyeball and cupping of the disc. The affection became chronic and the conditions resembled human bupthalmus in every respect.

Holth (Christiana). A new principle in the operative treatment of glaucoma.

Since 1893 Holth has seen the best results in glaucoma from iridectomies with a small cystoid scar; the cause of this is always an accidental incarceration of the iris periphery. Tension was in these cases lastingly normal, and vision remarkably well preserved, but the fellow eye which formerly had been the better one often became again hard and totally blind in spite of a correct iridectomy.

Having cast aside all theoretical objections and performed a number of such operations on rabbits, he began in August, 1904, to produce systematically subconjunctival iris incarcerations in glaucoma in man, first on eyes with absolute glaucoma, later on seeing ones. To obviate the danger of infection, he places the conjunctival section 10 millimeters from the corneoscleral margin. This prevents, too, the formation of a large bleb in the conjunctiva. As a rule a fistula is formed by the iris fold which is lined with pigment and reaches to the subconjunctival tissue. This has been shown anatomically. But, even without such a fistula, the incarceration of the iris can produce normal tension by means of the anastomosis of the uveal and subconjunctival blood and lymph vessels. He has performed this *iridencleisis antiglaucomatosa* on forty-one eyes. In 87 per cent. of the cases a lasting normal tension resulted, in thirty-one immediately, in four cases after several months. As the only disadvantage he saw a slight irritation of the iris for about one week after the operation.

For this incarceration of the iris an iridectomy is unnecessary and can be replaced by an iridotomy. A small peripheral iridotomy with incarceration of the little flap, preserves a round central pupil.

In the earlier experiments by Bader, 1873, and Herbert, 1893, the anterior surface alone of the uninjured iris seems to have been incarcerated; the anterior surface forms a blind sac and

thus no fistula can result. This can come about only through the posterior surface of the incised iris and the pigment epithelium.

M. Straub (Amsterdam). *On a formula for refractive errors.*

Emmetropia is determined optically. It is the ideal refraction which nature tries to obtain or to maintain. This is the reason for the theory of total correction of myopia. Emmetropia, furthermore, is the zero point of our nomenclature of refraction. The higher refraction (myopia) is called $E+nD$, the lesser (hypermetropia) is $E-nD$; astigmatism is $E+nD$ 70° temporally or $F-nD$ 20° nasally. Such a formula has given great satisfaction in teaching.

Schirmer (Greifswald). *The prognosis of traumatic abscess of the vitreous body.*

Schirmer reports on the curative results which in traumatic abscess of the vitreous body have been reached by his method of large doses of mercury. He has made use of this method in fifty cases during the past eight years, cases in which a yellow, grayish yellow, or diffuse gray reflex was perceived from the depth, or in which after exenteration or enucleation the abscess was seen.

Of these fifty cases twenty-four = forty-eight per cent. were not cured, and the eyes had to be sacrificed. In the remaining fifty-two per cent. of these cases the process was absolutely arrested, in thirty-six per cent. with preservation of vision. In twenty-two abscesses containing a foreign body the cures reached even fifty-nine per cent. The foreign body was always removed very early.

Within the last ten years he has given seventy-five cases with perforating injuries, a conservative treatment mostly of long duration. Although there were among these many cases which had all the conditions for producing sympathetic inflammation, he never observed such an occurrence while the patient was under the mercurial treatment or during the first three months after it was He, therefore, concludes that mercury has a prophylactic property in this affection as well as a curative one. This is the more important, since the main obstacle to a conservative mode of treatment in such cases has always been the fear of sympathetic inflammation.

Wessely (Berlin). *On the effect of Bier's stasis of the head on the eye of animals.*

Since Bier's stasis as a therapeutic measure is gaining more and more ground in all branches of medicine, the author tried to find out experimentally in how far the eye participates in the

stasis hyperaemia of the head. He experimented on rabbits, which easily bear the cephalic stasis, even if it produces oedema of the skin of the head. The eye shows exophthalmus and chemosis of the conjunctiva; the blood vessels of the interior of the eye show no hyperaemia. There is especially no albuminous exudation from the iris and the ciliary body, which we always find in cases of internal hyperaemia of the eye. When, as Hesse has done recently, applying a suction cup, the protrusion of the eyeball and chemosis are much increased, and the tension of the eye rises at first enormously. After a while the eyeball becomes soft. Only during the highest degrees of suction can an albuminous exudation from iris and ciliary body be observed, but there is much less of this than after puncture of the anterior chamber and subconjunctival injections of salt solution. The experience on human patients alone can give to this treatment its proper place, but the author believes that its field of usefulness will be a limited one and that the present means for producing local hyperaemia, being less dangerous, will be retained in ophthalmological practice.

Onodi (Budapest). The aetiology of contralateral eye affections and blindness of nasal origin.

Anodi showed by anatomical examination that the wall between the posterior ethmoidal cells, the sphenoid cavity and the optic canal is very thin. Sometimes the optic nerve even passes through one of these cavities. He divided the thirty-four possible positions of the ethmoid, sphenoid and frontal cavities to the optic nerve into eleven groups.

He then discussed the contralateral eye affections as reported in literature, as for instance a case of Freudenthal's in which after a Kilian operation on the right frontal sinus, the left eye became blind. It was assumed that an indirect fracture in the left optic canal had taken place. Onodi does not think that this is unconditionally correct since such fractures have never been observed.

Cases in which during the course of a nasal purulent inflammation on one side, visual disturbances make their appearance in the eye of the other side, he explains by the varying position of the neighboring cavities.

In cases of visual disturbances in which no cause is apparent, we should always think of a disease in one of these cavities. Many specimens elucidated the author's remarks.

Grunert (Bremen). Thiosinamin in ocular practice.

The author reports on his successes with thiosinamin in cases

of scars of the skin from lupus, and in postneuritis atrophy of the optic nerves. He employs the Juliusburg mixture of thiosinamin 31, glycerine 32, distilled water 310. In cases of postneuritic atrophy he adds to this a small quantity of strychnia. Of this solution he injects at first daily, then at longer intervals, about 1 ccm. into the muscular tissue, usually of the arm. In the blood this remedy has the faculty of rendering scars from any source softer and more mobile, and to diminish them. It acts in this manner, also, on the postneuritic connective tissue in the optic nerve. Strychnia is only used in the beginning of such treatment. When no further improvement could be produced, thiosinamin alone kept the conditions stationary. When the treatment was given up too soon, the conditions always grew worse. Of thirteen cases of postneuritic atrophy only four showed no results; one of these belonged into the class of family atrophy, the three others were cases of absolute amaurosis, which were, however, recent and offered some hope from thiosinamin treatment. In nine cases considerable improvement resulted. Since the chief action of thiosinamin is to cause hyperaemia and lymph stasis, some contradictions to its use must be recognized; for instance, detachment of the retina, opacities of the vitreous body, any kind of recent inflammation in one of the two eyes. An acute inflammatory process elsewhere in the body also may be aggravated or old latent inflammations may be rekindled. It behooves us, therefore, to be careful in the selection of cases.

Levinsohn (Berlin). Experimental studies on the pathogenesis of choked disc.

In order to study the direction of the current of fluids in the intervaginal space the author ligated a number of optic nerves in cats and rabbits. He, also, wanted to see whether choked discs would result therefrom. In another number of animals a small quantity of a fluid containing some zinnabar was injected into the subarachnoid space and the behavior of this pigment was studied after a shorter or longer period on serial sections of the brain, the optic nerves and the eyeball. Finally the zinnabar injections and ligations were combined. The results were as follows:

1. There is a slight current of cerebrospinal lymph going from the brain through the intervaginal space and another along the central connective tissue from the eye to the optic nerve. Both these currents empty into the perivascular spaces of the central blood vessels.

2. An injection of zinnabar into the subarachnoid space, even with a small degree of pressure, almost immediately fills the whole intervaginal space and enters into the perivasculär spaces of the central blood vessels, where they pass through into the central connective tissue of the optic nerve.

3. A stasis in the proximal part of the optic nerve which produces a dropsy of the sheaths, is masked by inflammatory symptoms in the sheaths.

4. Three factors work together in producing a choked disc, two of which—the intracranial pressure and inflammatory changes in the cerebrospinal lymph—are primary and one of which—the swelling of the papilla caused by the stoppage of the exits of the lymph from the vitreous body—is secondary—Inflammatory symptoms are very soon added to these changes.

Dimmer (Graz). *The macula lutea of the human retina.*

Based on ophthalmoscopic, endoscopic and anatomical examinations, Gullstrand, as is well known, insists that the yellow color of the macular region is merely a postmortem phaenomenon. Dimmer, on the contrary, has repeatedly seen the yellow color in cases of embolism of the central retinal artery, when examining the eyes by daylight. In the photograph of such a case this yellow part was very plainly visible as a dark spot. By using daylight in examining darkly pigmented normal eyes with a dilated pupil, the yellow spot is easily seen. It covers an area of one-fourth to one-third of a papilla diameter, sometimes even more, and therefore corresponds to the fovea, the thinnest part of the retina and its neighborhood. In juvenile individuals this is easiest to be seen. These examinations prove that there is a yellow spot in the living retina. The endoptic appearance of Maxwell's spot is due to absorption in the yellow pigment and its size is exactly that of the macula lutea as seen with the ophthalmoscope. The older statements according to which the macula is said to measure 2 mllm. and the most pigmented part 0.8 to 1.5 mllm. are the results of anatomical examinations and are to be explained by the diffusion of the yellow pigment into the neighboring retina after death.

Best (Dresden). *Pathogenesis of detachment of the retina.*

When phloridzin is repeatedly injected under the skin of rabbits, there results, aside from inflammatory reactions, invariably an exudation between retina and pigment epithelium. A similar exudation may be produced by the subconjunctival injection of irritating substances, by a circumscribed cauterization of the

sclerotic, and frequently by intraocular inflammations of bacterial origin. The author considers most retinal detachments during a chronic iridocyclitis of any kind, in diabetes and, probably, also in albuminuric retinitis, as due to an exudation.

The cause of the spontaneous detachment of the retina he sees in the continuously repeated pulling action of the vitreous body, when in consequence of partial liquefaction and circumscrip condensations (opacities) it is no longer exerted uniformly upon the whole retina during the movements of the eyeball, and not in a pulling action due to shrinkage. The pulling of the vitreous body tears the retina in such places only in which by age or other processes this membrane has become atrophied.

Uhthoff (Breslau). On metastatic carcinoma of the choroid.

The author reports a case of binocular metastatic carcinoma of the choroid after carcinoma mammae. This is his third case of this kind. The other two he has published previously. He mentioned moreover, two cases of metastatic carcinoma of the ciliary body, one published by Paul and one by himself. All of these cases were examined histologically. The recent case shows a series of interesting details.

In the first place the author could for three months ophthalmologically observe the gradual development of different foci of the metastatic carcinoma of the choroid, in the left eye of a patient fifty-four years of age. He showed pictures of the ophthalmoscopic appearance. On dissecting the eyes, he found in each one in addition an isolated carcinoma nodule in the ciliary body. For these he assumes a separate metastasis, not dissemination. In the large choroidal tumor of the left eye, which was flat, shell-like and of little thickness, a certain sharply defined part was found to be necrotic, probably, due to a haemorrhagic infarct. Furthermore, while the case was being observed, an extensive spontaneous reattachment of the detached retina in the right eye took place and vision was correspondingly improved. The ophthalmoscope showed in this locality a yellowish red colored choroid and numerous pigment spots.

The shape of the tumors was the usual one of metastatic choroidal carcinoma, that is, flat, shell-like; in the left eye, however it could still be shown on anatomical examination, that the tumor was composed of several foci which had coalesced. There were metastases in other organs.

Leber (Heidelberg). On hypermetropia of the highest degrees.

In sixteen years the author has collected sixteen cases of

hypermetropia of from 8 to 16 D. Others have reported cases of as high as 27 D.

In the author's cases it was shown by the measurement of the curvature of the cornea that the very high degree of hypermetropia was not due to the fact that to the short axial length an extraordinary low curvature of the cornea was added; on the contrary the radii of the cornea were always short and in the highest degrees of hypermetropia even strangely so. Consequently the axis of such eyes must be shorter than would correspond to the degree of hypermetropia because the high curvature of the cornea must increase the refraction of the eye to a considerable degree. Leber found that in some of these eyes the axial length of the eye must have been 7.5 mllm. shorter than in the normal in order to bring about the degree of hypermetropia observed in spite of the great corneal curvature. Yet, unless such an eye is quite abnormally shaped, this can only be the case when all of the diameters of the eye are shorter and not only the antero-posterior one. This means that we have before us a certain degree of microphthalmus, as is in reality often manifested by other signs, especially by a very small diameter of the cornea.

This agrees with Donder's view, who considered the hyper-tropic eye to be an underdeveloped one.

We have but little positive knowledge of the size and shape of eyes of medium and small degrees of hypermetropia.

In the newly born we would have to assume a very high degree of hypermetropia on account of the smallness of the eyeball and the greater curvature of the cornea. That this is not the case and that we find but a medium degree of hypermetropia is due, as Hess has shown to the comparatively higher degree of convexity of the crystalline lens. The calculation of the focus of a lens from the eye of a newly born which E. von Hippel dissected at once after death gave $31\frac{3}{4}$ mllm. instead of 50 which is the mean for adult lenses. From this it results that beginning from birth and in about the same measure as the eyeball grows the lens must become less convex. If an eyeball remains below the normal in the antero-posterior or in all diameters while the lens is flattened in the normal manner, the hypermetropia present must remain the same or increase to a lesser or higher degree.

Zur Nedden (Bonn). On the therapeutic and diagnostic value of an early puncture of the anterior chamber in iritis.

In tuberculous iritis the inoculation of the iris tissue or aqueous humor from the human into the rabbit's eye is successful only

when the inoculating material was taken at an early stage of the iritis. After a prolonged course of the disease the bacteria no longer possess the necessary virulence to reproduce the disease in the animal experimented upon.

It is very difficult to get iris tissue during the beginning of an iritis, as an iridectomy can be performed only when the severe symptoms of irritation are passed. A paracentesis can, however be made with ease in the earliest stages of the iritis and without detriment to the eye. Experimental studies in cases of acute endogenous iritis in rabbits have even shown that an early paracentesis may have a very beneficial influence on the process of the disease. This is explained by the renewed formation of the aqueous humor, which during inflammatory processes takes up the antibodies contained in the blood, and by the hyperaemia which follows the paracentesis and which, according to Bier's discoveries must be looked upon as the most useful remedy in infectious processes.

In the human eye iritis was cured in a number of cases in a short time, when the paracentesis had been made at the beginning of the disease and had been several times repeated at intervals of a week.

Aside from the inoculation of the aqueous humor it is well to examine it in smears by means of different stains. In one case of luetic iritis it was possible by means of Gimsa's stain to find in the aqueous humor a few spirochaetae, which were probably identical with the spirochaeta pallida.

In studying the aetiology of iritis it may be well to add to the examination of the aqueous humor a blood examination.

Bielschowsky (Leipzig). Disturbances of absolute localization.

The author has examined the disturbances of absolute localization (faulty projection in the field of vision) in twenty-five cases of paralysis of ocular muscles. Making use of the sense of touch, the sources of error being eliminated as much as possible, he arrived at the following results:

1. In typical cases the error in localization when fixing with the paralyzed eye is always very nearly as large as the angle of secondary deviation.
2. Atypical cases in which the most important symptoms are lost, show very frequently and, according to whether the one or the other eye is the fixing one, correct localization or an error which corresponds to the angle of deviation. This phenomenon

may render possible a differentiation of the atypical forms of isolated paresis from other disturbances of innervation.

3. The spastic "disturbance of localization as first described by Sachs," is observed only now and then, when the patient fixes with the eye that is not diseased, and this happens not only when there is a permanent secondary deviation of the paralyzed eye, but also in the ordinary cases in which the healthy eye guides the movements. This spastic disturbance is characterized by the fact that in case of a paralysis of the right abducens while the patient fixes with the left eye, he will feel for the object of fixation to the left side of its position. This happens, however, only or at least most strongly in the area of the left rectus internus. An explanation of this phenomenon is as yet wanting.

Fleischer (Tuebingen). On microphthalmus.

The author has examined the eyes of a human monstrosity and of three pairs of microphthalmic dog's eyes. Very strange conditions were found in the first. The eye was separated into an outer and an inner half by a septum formed of retinal tissue and proving to be a duplication of the inner-most layers of the retina. Below, this septum passed over into the mesodermal tissue filling a choroidal coloboma. In the lower part of the eyeball a septum-like mass of atypical retinal tissue reached from the optic papilla to the posterior surface of the lens. The iris, especially its retinal parts, were bent around the aequator of the lens and adhered to the posterior surface of the lens, or rather to the tunica vasculosa lentis. The author considers these adhesions to have a special importance in the production of the malformations and refers to other such adhesions observed, especially by De Vries. He believes that such adhesions between the mesoderm and its blood vessels and the retina and lens may play an important role, also, in the formation of simple colobomata, similar to Bach's opinion. He does not decide whether the cause lies primarily in the mesoderm or in the ectodermal structures.

Lohmann (Muenchen). On light adaptation.

When an eye being adapted to darkness is brought into light the decrease in its sensibility for small irritations is very rapid in the first third of the first minute. Later on this decrease goes on slower and slower. About one-half hour later (the light being of 25 to 50 meter candles) the adaptation for light is as yet not complete.

Harms (Tuebingen). The aetiology of transitory obscurations combined with choked disc.

The author had occasion to observe ophthalmoscopically at the Tuebingen clinic a patient with choked disc in both eyes during an attack of sudden blindness in the left eye. The patient was an unmarried lady, 40 years of age, with a swelling of the left optic disc of three to four dioptres and one of three dioptres of the right disc. She had suffered from left-sided headache for three years; three weeks ago the right arm had become paralyzed, but had regained its movements within a week. In the last two weeks sudden obscurations had appeared in the left eye. The ophthalmoscopic examination during such an attack revealed an absolute ischaemia of the retinal arteries, while the veins were unchanged. While the author observed the eye, slowly the retinal circulation returned and vision was restored to its former degree. The same phenomenon was twice more observed in the following five days. It was impossible to find cerebral focal symptoms, which would have explained the choked discs, but there was an acute parenchymatous nephritis. Signs of an albuminuric retinitis (white plaques and haemorrhages) were absent.

The author assumes a spasm of the arteries as the cause of the interrupted circulation, as Wagenmann and Sachs have done before him and as recently, Hoppe among others has seen in cases without choked disc. These observations prove that Jackson's explanation that these sudden obscurations with choked disc, are to be looked upon as epileptiform amaurosis due to cerebral causes, is, at least for some of these cases, incorrect.

Wessely (Berlin). The action of the usual therapeutic measures in detachment of the retina artificially produced.

Wessely has formerly shown how in animals large detachments of the retina can be produced by cauterization. In such cases he has now studied the therapeutic action of a pressure bandage and subconjunctival injections of salt solution. He was surprised to find that the pressure bandage showed no appreciable influence upon the detachment and that even under the highest pressure through choroidal exudation just as extensive retinal detachments may take place as in the free eye. In the same manner did the salt injections not hasten the absorption of the sub-retinal exudation; on the contrary, they seemed to prolong the process of exudation. The author does not want to say that the conditions would be the same in the human eye.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M. D.
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SO-CALLED LEUCOSARCOMA OF THE IRIS.

E. V. L. Brown (Jr. A. M. A., Aug. 11, 1906) concludes his article with the following recapitulation:

1. Ribberts' theory of the origin of all uveal sarcomas from chromatophores is worthy of most careful further consideration.

2. The analogy between the round, spindle, and star-formed cells, which proliferate in sarcoma, and the spindle and star-formed cells, found in the embryonic choroid, is incomplete, because a round cell first stage has not been proved to exist in the latter.

3. It is more reasonable to suppose that the 'cell reversion' takes place to any one of these forms of sarcoma, analogous to the relations which obtain between embryonal and pathologic conditions in glioma, than it is to suppose that lower cell forms are transformed into higher cell forms. (Borst.)

4. So-called leucosarcoma of the iris offers a more favorable opportunity for the study of the chromatophore theory than does sarcoma of the choroid, because here the normal chromatophore is much less heavily pigmented than in the normal choroid, or than the chromatophore in the iris. Pressure, too, destroys the normal cell.

5. The term leucosarcoma should be retained, but used only in reference to the clinical appearance of iris sarcoma."

EYESTRAIN.

Hinshelwood (Lancet, July 14, 1906) tells us that in the treatment of eyestrain it is important to impress on the patient that more is required than the prescription of suitable glasses. The patient must be instructed to use his eyes in an intelligent way so as to throw a minimum of strain on them and allow the

function of vision to be exercised under the most favorable conditions. Attention must be given to the length of time the eyes are used for near work, to the size of the objects looked at, and to proper illumination. The intelligent co-operation of the patient is necessary in such cases to bring about a satisfactory result. Any local affection of the lids, the passages, or of the eye itself require careful treatment.—*N. Y. Med. Jr.*

A CASE OF SUPPRESSION OF AQUEOUS SECRETION.

D. C. Lloyd-Owen (The Ophthalmoscope, Aug.) reports a case of this unusual condition. The patient, a professional man, aged 40, enjoying good health and having good family and personal histories consulted him one week after the onset of the trouble, complaining of blurring of vision of the right eye and slight sorneness on the top of the eyeball. He found very slight conjunctival injection a little lack of lustre of the cornea, very shallow anterior chamber, but active pupil of normal size. Some tenderness on pressure over equatorial region above, and turning the eye suddenly, especially to the right, caused subjective sensations of light. Tension — 2. Retinoscopy showed refraction to be — 2.5 D. S., with which correction he read $\frac{1}{2}$ and Jaeger No. 1. Left eye normal.

Treatment with pilocarpin drops, varied with atropin and dionin, did not affect the depth of the anterior chamber nor the tension of the globe, and refraction and vision did not change. Three weeks after the first consultation his sight suddenly cleared up in the right eye and was as good as in the left for several hours, but became defective again before he could return for examination. A week later he presented himself with the sight again recovered when it was found that the depth of the anterior chamber of the right eye was normal, the cornea was as bright as that of the left eye, tension normal, refraction practically emmetropic, and vision $\frac{1}{2}$ and Jaeger No. 1 without correction. Four days later another relapse occurred, lasting three days, after which the eye remained normal for two weeks. Then another relapse of three days was followed by a recovery lasting one month after which a two days' relapse was followed by permanent recovery. At each relapse all the symptoms first noted recurred and each time the vision improved, the anterior chamber recovered its normal depth, the tension became normal, the refraction emmetropic and vision normal without correction.

CLINICAL OBSERVATIONS CONCERNING THE
NASAL PASSAGES AND THE RELATIONS THEY
BEAR TO THE ORGANS OF SIGHT AND HEARING.

Alice G. Bryant (Medical Record, Sept. 15) states that nasal affections may be aetiologically active in the production of the following ocular disturbances: Epiphora; oedema of the lids; dacryocystitis; blepharospasm; strabismus; myopia; asthenopia; lacrimation; photophobia; scintillating scotoma; narrowing of the visual field; exophthalmus; diplopia; lacrimal abscess; persistent pain in the eyeball; ophthalmia; corneal ulcer; catarrhal conjunctivitis; eczematous keratitis; diseases of the optic nerve (neuritis or atrophy); retrobulbar neuritis. Concerning the relation the eye and lacrimal duct bear to the nasal passages and their accessory sinuses and cells, the author points out that, anatomically, the maxillary antrum forms the floor of the orbit, the frontal sinus partly aids in forming the roof, and the ethmoidal cells are closely associated with the lacrimal duct and have been known to surround the duct; and the sphenoidal cavity—or the sphenoidal cavity plus the posterior ethmoidal cells—is in close relation to the optic nerve and the ophthalmic artery. This is a very interesting subject as well as one pregnant with great possibilities. Future studies and research along this line promise rich findings. Diseases of the accessory sinuses and cells produce serious disturbances of vision, and the ophthalmologist and rhinologist will in the future be more closely associated in the solution of the weighty problems connected with this subject. Ear statistics show that sixty per cent. of all ear diseases are caused by faulty conditions of the nose or throat, which fact makes the importance of caring for the nasal and nasopharyngeal tract very evident. No examination of a child should be considered complete until the eye, ear, nose and throat have been carefully examined.

A SERIES OF CASES ILLUSTRATING THE OCULAR
COMPLICATIONS OF HYSTERIA.

Edward A. Shumway (American Medicine, Oct. 1906), following Schwarz, classifies the chief ocular manifestations of hysteria as follows:

A. Abnormal subjective sensations, such as dryness of the

conjunctiva, feeling of foreign body, ocular pains, photophobia, light and color sensations, and hallucinations of various sorts.

B. Disturbances of vision—1. Of direct vision, (a) diminution of visual acuity; (b) loss of color perceptions; (c) light sense disturbances. 2. Visual field disturbances, such as contraction in extent and reversal of the order in which colors are perceived. 3. Indirect visual disturbances, produced by disturbances in the motor apparatus, including (a) double vision (both monocular and binocular), and (b) micropsia and megalopsia.

C. Disturbances of the muscular apparatus—1. Of the internal muscles, (a) of accommodation, either spastic or paralytic; (b) of the pupil, myosis and mydriasis. 2. Of external muscles. Such as convergence spasm, conjugate deviation, and nystagmus; and less certainly paralyses of the various muscles or groups of muscles, the most common of which is convergence insufficiency. 3. Of lid movements, in the form of clonic and tonic spasms, the latter of which appears in pseudoptosis.

D. Disturbances of sensation, such as hyperesthesia and anesthesia of the conjunctiva and cornea.

E. Disturbances of secretion, lacrimation, etc. Shumway notes the fact that alterations in the direct vision, changes in the visual fields, in accommodation and pupil phenomena, and in the sensibility, are the ocular complications most frequently occurring, and reports five cases illustrating these.

The cases were all females, who are most prone to this affection, their ages being 10, 18, 20, 36 and 45 respectively. The period between 10 and 20 years is the time most prolific of these disturbances. One case was of a grave type of hysteria, in which there was a history of blindness; the others were all mild forms, but in all of them the visual acuity was greatly reduced, in both eyes of all except the child. Three cases showed cutaneous anesthesia and in all of these the greatest reduction of vision was on the anesthetic side, which is the rule. All of the patients were of a nervous type and in four of them the impairment of vision followed some mental shock. No ophthalmoscopic changes to account for the alteration of the visual acuity were found in any of the cases. There was paralysis of the accommodation in four cases and unilateral mydriasis in two, one of the latter being of paralytic and the other spastic character. There was contraction of the visual field in four of the cases, three of them being typically tubular fields, and reversal of the color fields in three. Only one complained of pain in the eyes or photophobia, while

one had convergence insufficiency and three anesthesia of the cornea and conjunctiva.

A CLINICAL NOTE UPON CLEFTS IN DESCemet'S MEMBRANE.

Sydney Stephenson (The Ophthalmoscope, June) reports two cases of this peculiar condition to which German writers have called attention and which is produced mechanically. These fissures have been seen in several conditions of the eye, all of which had caused distension of the globe. Haab, Reis, Axenfeld, and Seefelder have found them in cases of buphthalmus; Axenfeld in keratoconus; De Gama Pinto, Becker, and Wintersteiner in intra-ocular tumors; and Fleisher in progressive myopia.

Reis and Seefelder, by histological examinations, have proved that the lines observed in these cases are fissures in Descemet's membrane.

In Stephenson's first case about a dozen greyish lines could be observed which resembled "so many cracks in ice or flaws in glass." The lines appeared to lie near the posterior surface of the cornea and none of them extended the entire length of the cornea. The refraction of the eye, estimated under atropin was—10.50 D. Sph. \odot — 12.50 D. cyl. ax. 105°. Vision which was fingers at 1 metre, was not improved by this correction, however.

There were no corneal changes in the left eye anything like those present in the right, and the refraction of the left eye under atropin was + 1.25 D. Sph. \odot + 1.75 D. cyl. ax. 115°, with which correction her vision was $\frac{6}{12}$.

The second case was a child which had interstitial keratitis, evidently due to hereditary syphilis, and on whom at the age of about 10 months, large iridectomies were performed for the relief of buphthalmus. About five years later the fissures of Decesmet's membrane were first looked for and the lines were found in the cornea of both eyes.

CONTRIBUTION TO THE TREATMENT OF TRACHOMA WITH RADIUM.

A. N. Dinger (Berliner Klinische Wochenschrift, Oct. 1) gives his results obtained by the use of radium in the treatment of trachoma. Of sixteen cases treated seven were cured, the granulations entirely disappearing. The cure is quicker and more com-

plete in young patients, the older ones and those cases complicated by pannus requiring more time, though the pannus does gradually yield to this treatment and the patients are made more comfortable and are able to work. This treatment, being quicker and painless, is prefered by Dinger, as well as by the patients, to that with caustics, or by mechanical removal of the granulations.

METHYLENE BLUE IN PURULENT DACYROCYSTITIS.

Wicherkiewicz (Norving Lekarskie and Le Bulletin Medical, Sept. 8) believes that methylene blue should still be retained by the profession as a therapeutic agent, declaring that it yields remarkable results in chronic dacryocystitis. After washing out the sac with a boric acid solution in these cases, he injects a 0.2 to 0.5 per cent. solution of methylene blue and applies a bandage so as to make light pressure. Should any vegetations obstruct the lacrimal duct, these are removed with a sharp curette; then the sac is washed out with hydrogen dioxide and the methylene blue solution injected. This treatment has produced excellent results in the hands of the author, curing several cases in which it had been previously thought the lacrimal sac should be removed.

STRIKING IDIOSYNCRASY TO THE USE OF COCAIN IN THE EYE.

T. W. Moore (Jour. A. M. A., Nov. 3) reports a case of marked idiosyncrasy to cocaine used in the eye. The patient was a young man in whose eyes the author had instilled a solution containing two per cent. of homatropin and four of cocaine, one drop in each eye every five minutes until six drops had been instilled. When the sixth drop was used it was noticed that the lids were so swollen that it was with difficulty they could be separated, and there was decided chemosis and redness, the cornea appearing sunken. Hot applications reduced the swelling some, but not sufficient for him to resume his work the next day. The author was in doubt as to the cause until some time later the patient came with a foreign body on the cornea. One drop of a four per cent. solution of cocaine was used and in five minutes the lids became greatly swollen again. This subsided under hot fomentations, so that by the next morning it had entirely disappeared. The patient also has an idiosyncrasy to quinin